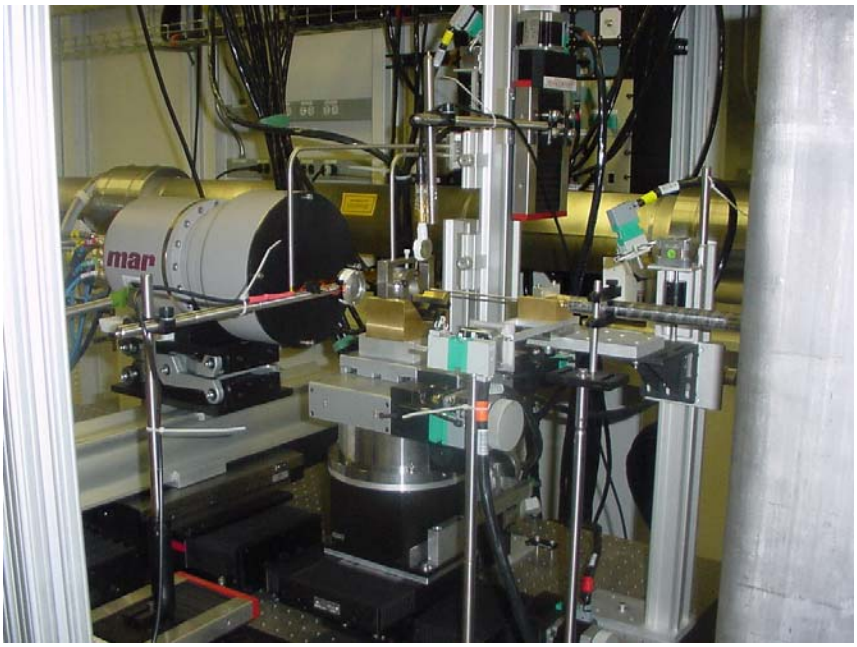
ID-B is a micro-diffraction station with the following characteristics:

Energy range: 24 – 35 keV
Usual energy: 29 –35 keV

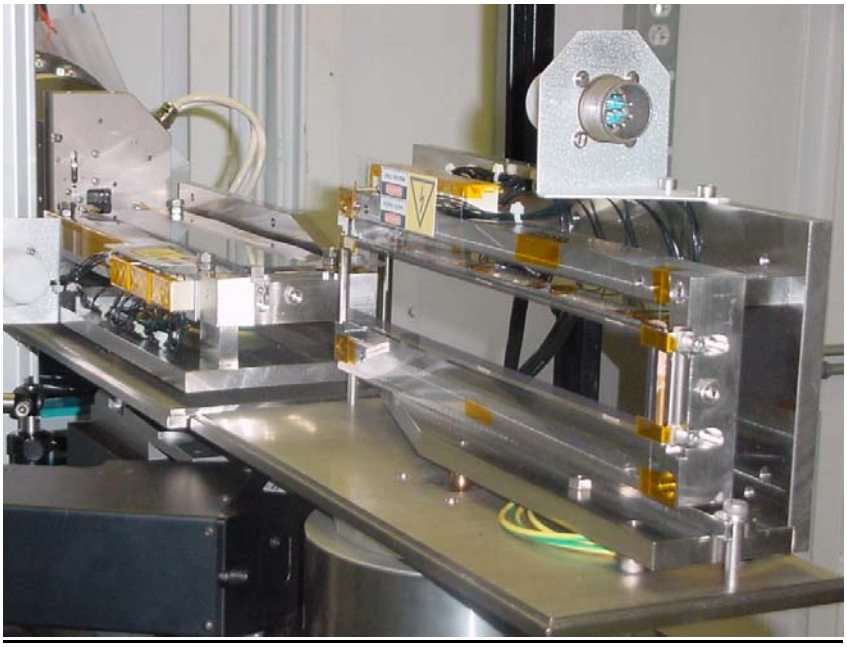


Focusing:

Two Pt coated 300 mm long 8 electrode bimorph mirrors
Best focal spot size: 5 µm (V) x 7 µm (H), with no tails
(*This requires special tuning for the experiment*)

Standard focal spot size: 10 µm (V) x 14 µm (H), with no tails
Focal spot can be tuned up to 30 µm (V) x 30 µm (H)

Usual mirror to focal spot distance: 750 mm (sample to center of H mirror), but the beam can be focused on the sample or on the detector for the best resolution.

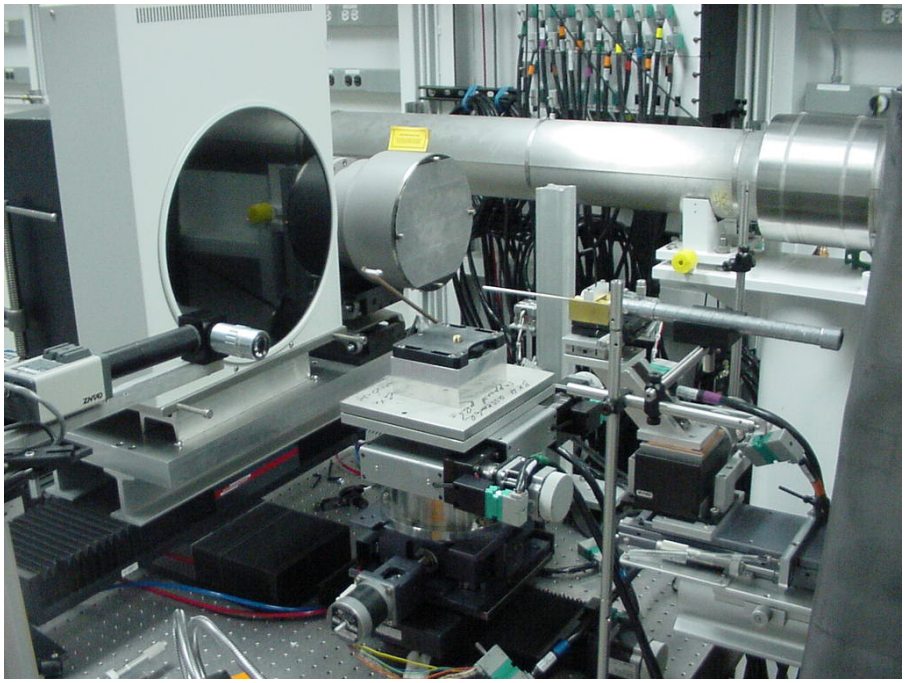


Detectors:

MAR165 CCD
Typical exposure time: 5s for high-Z, 60s for low-Z
R+W time < 20s

MAR345 IP
Typical exposure time: 5s for high-Z, 30s for low-Z
R+W time: < 60s for 150 µm pixels
< 240s for 100 µm pixels

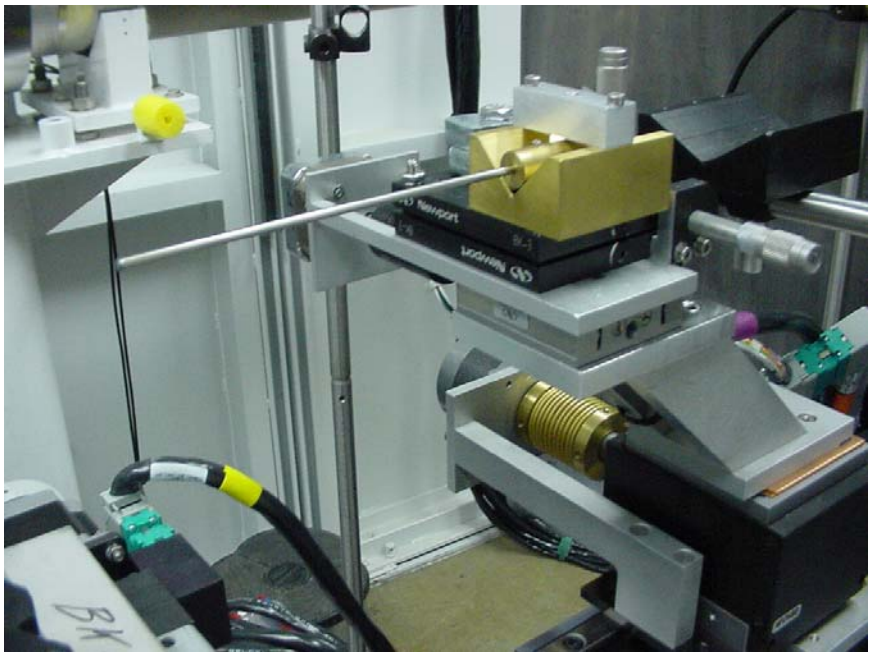
BOTH DETECTORS ARE INSTALLED AND AVAILABLE IN PARALLEL FOR ALL EXPERIMENTS. IN THE MOST DEMANDING CASE, USERS DECIDE WHICH ONE IS BEST SUITED FOR INDIVIDUAL IMAGES.



Pinhole:

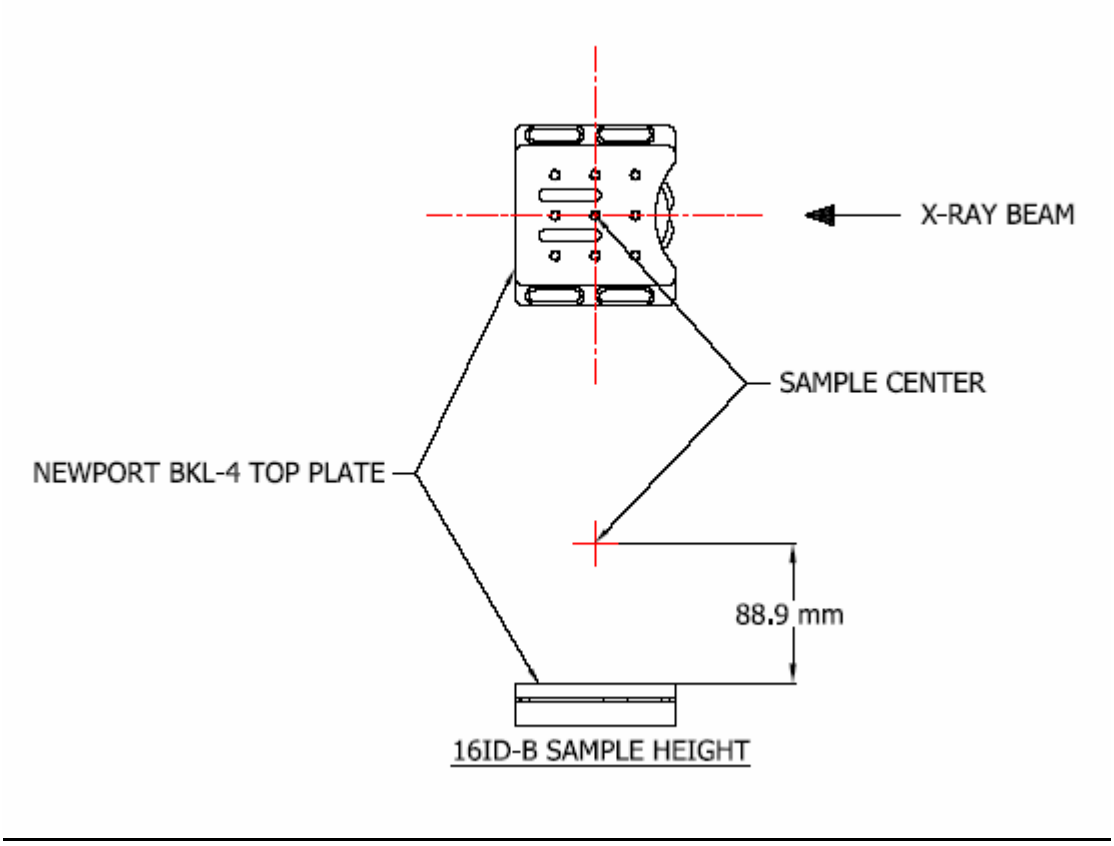
(Standard feature of the experimental setup)
Range: 5 to 150 µm

Mounted at the end of 3mm diameter tubes, they can be inserted right against the diamond anvils.



Cell mounts:

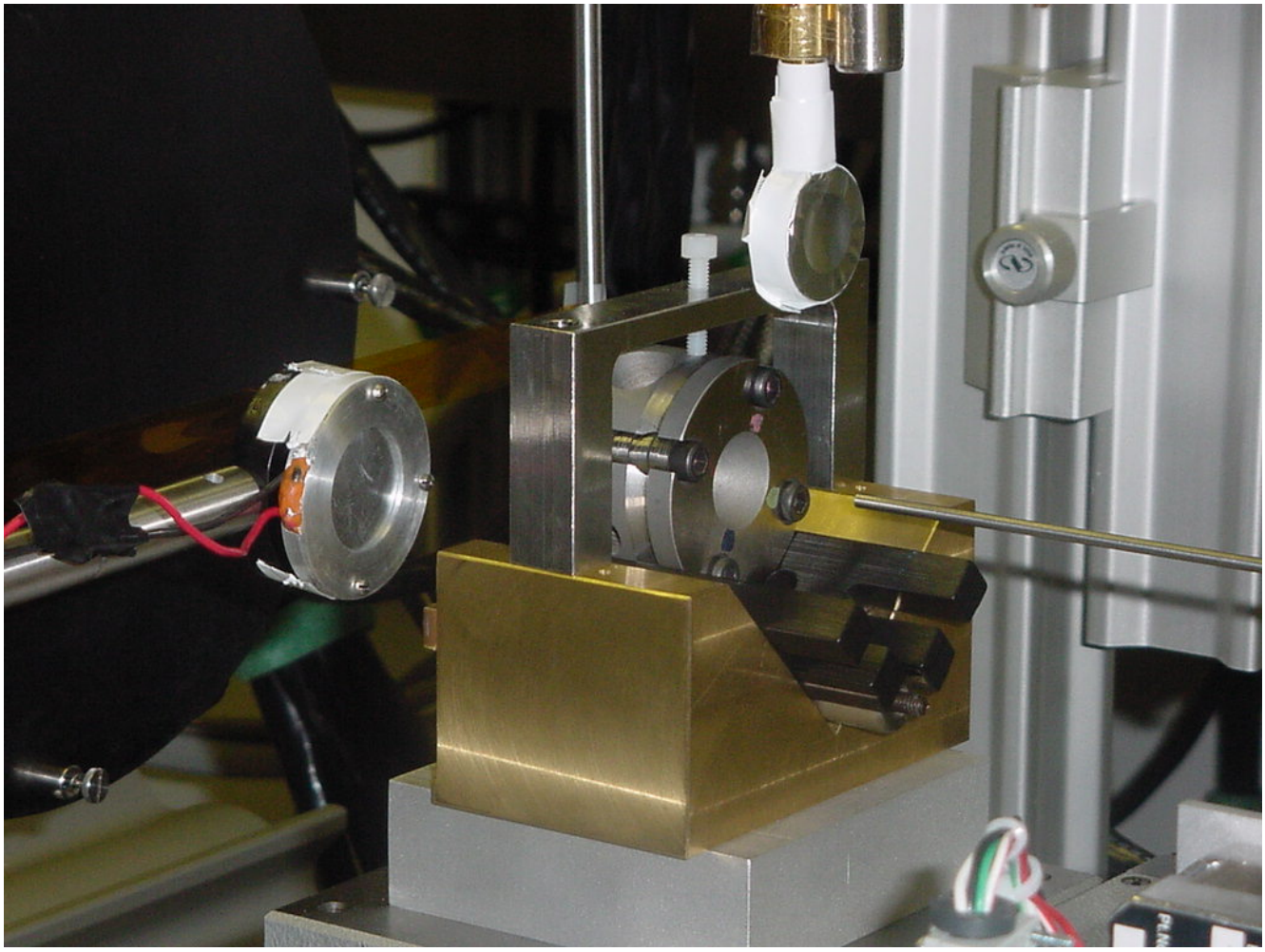
ALL USERS SHOULD BRING DAC's ALREADY MOUNTED ON THE TOP PLATE OF A NEWPORT BKL-4 MOUNT as per the dimensions indicated below



Note

Current height from BKL-4 top plate to sample is 88.9mm (the old height was 63mm), which is the same height for all HPCAT stations and Ruby system.

V-block cell mounting also possible by request…

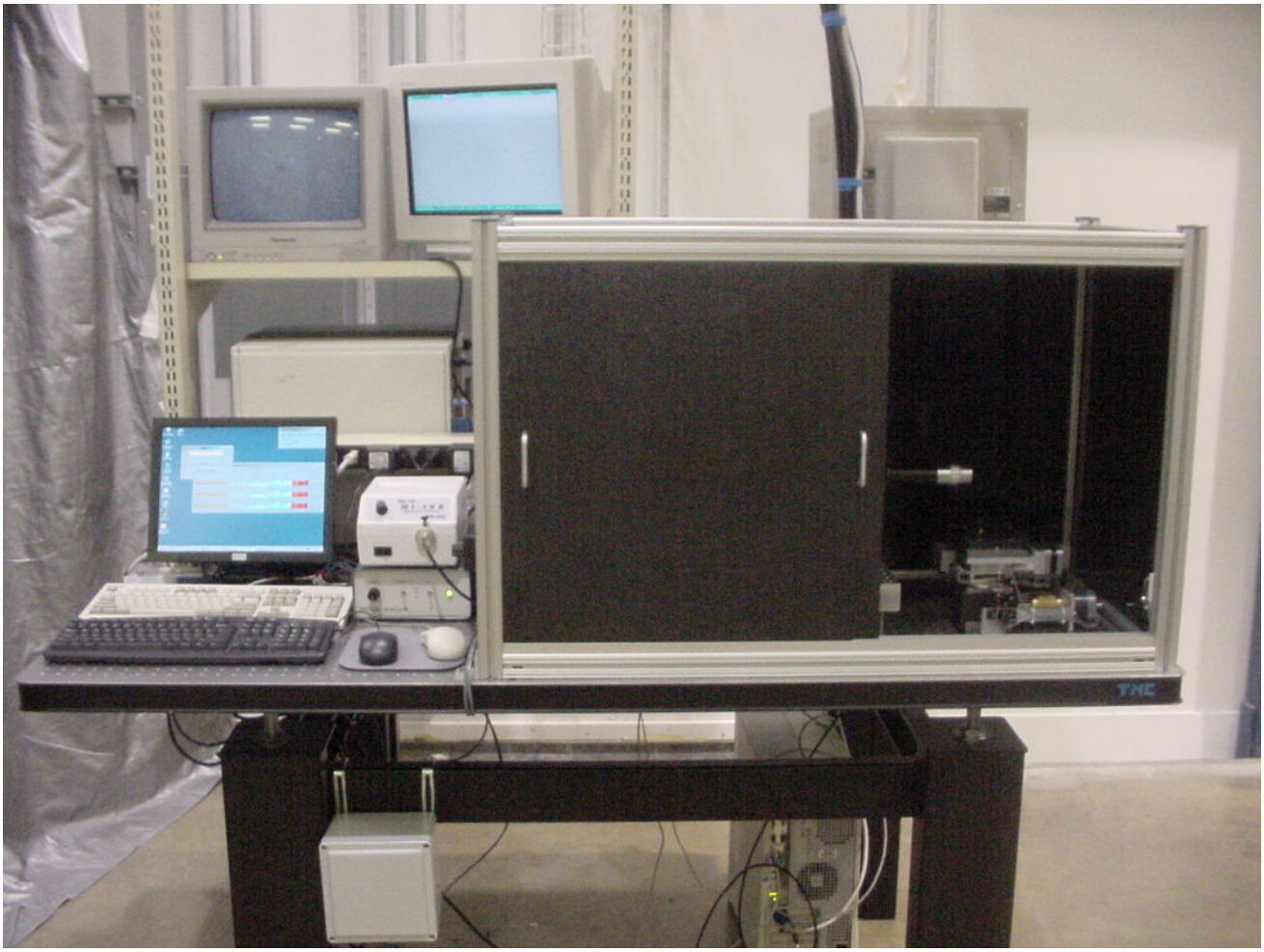


Pressure ruby luminescence (PRL) measurement:

An off-line ruby luminescence system is available at all time for users who do not use internal x-ray diffraction calibrants.

The PRL white-light illumination now follows the same path as the laser beam so it is best to **load the ruby on the downstream side** of the DAC.

The PRL is now fully motorized and contained within an interlocked safety enclosure SO THAT THE SYSTEM IS NOW Class I, so neither an eye examination nor laser safety courses are required. All alignment controls are *via* a PC and sample observation *via* a camera and monitor.



Offline alignment:

TO SAVE TIME an optical off-line pre-alignment system is available: The cross-wire used to optically reference the x-ray beam in the station is used as a reference in the off-line system. The sample is brought to that point, and then its x_{off},y_{off},z_{off} coordinates are transformed to x_{on},y_{on},z_{on} in the corresponding on-beam frame of reference when the cell is moved.